

1.023.018



PATENT SPECIFICATION

DRAWINGS ATTACHED

Inventor: FRITZ SCHIELE

Date of Application and filing Complete Specification: Sept. 27, 1963.

No. 38171/63.

Complete Specification Published: March 16, 1966.

© Crown Copyright 1966.

1.023.018

Index at acceptance:—F1 N(2A1, 2J); F2 A(33, 37E, 55)

Int. Cl.:—F 04 c // F 06 n

COMPLETE SPECIFICATION

Oil-Delivery Arrangement

We, VEB DKK SCHARFENSTEIN, a Corporation organised under the laws of Eastern Germany, of Scharfenstein/Erzeberge, Germany, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be, particularly described in and by the following statement:—

The invention relates to an oil-delivery arrangement for hermetically enclosed motor compressors with vertical shaft, wherein by a simple shaft construction without additional parts a continuous lubrication of the bearings and of the moving parts is achieved.

Designs of enclosed motor compressors with vertically arranged shaft are already known wherein an oil lubrication of the moving parts is effected by a centrifugal pump which dips into the oil sump situated at the bottom of the enclosing casing. By centrifugal action the oil is forced upwards by means of an inclined plane, rotating with the shaft, whereby it reaches the parts to be lubricated.

When enclosed motor compressors are used in cooling systems it is unavoidable that the oil, according to the prevailing pressure and temperature, should absorb a certain quantity of cooling medium, which on disturbance of the equilibrium evaporates out again and thus forms bubbles of cooling medium in the oil sump, which are entrained with the oil by the pump and hinder the continuous oil delivery. In the extreme case the oil delivery is entirely suppressed thereby.

In order to permit the cooling medium vapour to escape from the delivery bore of the pump, it has already been proposed to arrange in the shaft an opening passing to the exterior from the delivery bore, in such manner that the opening lies opposite to the direction of action of the centrifugal force. Such an arrangement precludes the possibility of gas cushions forming which unfavourably influence the oil delivery.

It is further known to impress into the

opening lying laterally of the delivery bore and opposite to the direction of action of the centrifugal force a hollow rivet which extends with its end into the delivery bore and effects a more intensive separation of the cooling medium vapour.

The known embodiments have the disadvantage that the necessary degasification of the oil is rendered possible only by additional parts such as degasification cones, hollow rivets etc. These additional parts, apart from an increased technological expense, signify a more complicated assembly.

It is the aim of the invention to provide, without the use of additional parts, a delivery arrangement with which a continuous oil delivery takes place, without the cooling medium bubbles entrained with the oil forming gas cushions and hindering the oil delivery.

According to the present invention there is provided an oil-delivery arrangement for hermetically enclosed motor compressors with vertical shaft, the lubrication of the sliding parts thereof being effected by means of a centrifugal pump dipping into an oil sump and constituted by an inclined delivery bore in said vertical shaft, wherein in the shaft there is arranged for the separation of the gaseous cooling medium undissolved in the lubricating oil a degasification slot, which has a cross-section enlarged in comparison with the delivery bore.

It is possible for the slot to be produced by swarfless shaping or by swarf removal. The mixture of oil and cooling medium contained in the oil sump rises due to the centrifugal action in the delivery bore of the shaft, it being possible for the cooling medium gases to escape through the degasification slot into the casing space.

A constructional embodiment of the invention will now be described, by way of example, with reference to the accompanying drawing, wherein:—

[Price 4s. 6d.]

Figure 1 shows the plan view of a shaft; and

Figure 2 shows a view taken in the direction of arrow "X" according to Figure 1.

5 In the shank of a motor compressor shaft 1 there is formed, by swarfless or swarf-removing production methods, a degasification slot 2 which possesses a larger cross-section than that of a delivery bore 3, this slot being
10 placed at any desired distance from the oil inlet end 4. Due to the rotating movement of the shaft 1, which dips into the oil sump situated at the bottom of the motor compressor casing, the lubricating oil is forced by
15 means of centrifugal action upwards through the delivery bore 3 into a threaded groove 5 and passes to the sliding parts of the motor compressor. Through the degasification slot 2 the gaseous cooling medium can escape into
20 the enclosing space of the motor compressor. Thus the object is achieved that a continuous flow of oil reaches the sliding parts of the compressor.

WHAT WE CLAIM IS:—

25 1. An oil-delivery arrangement for her-

metically enclosed motor compressors with vertical shaft, the lubrication of the sliding parts thereof being effected by means of a centrifugal pump dipping into an oil sump and constituted by an inclined bore in said
30 vertical shaft, wherein in the shaft there is arranged for the separation of the gaseous cooling medium undissolved in the lubricating oil a degasification slot, which has a cross-section enlarged in comparison with the
35 delivery bore.

2. An oil-delivery arrangement according to Claim 1, wherein the degasification slot can be placed at any desired distance from the oil inlet end of said delivery bore.

3. An oil-delivery arrangement substantially as described with reference to and as illustrated in the accompanying drawing.

For the Applicants:
MATTHEWS, HADDAN & CO.,
Chartered Patent Agents,
31/32 Bedford Street,
Strand, London, W.C.2.

1023018

COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

Fig. 1

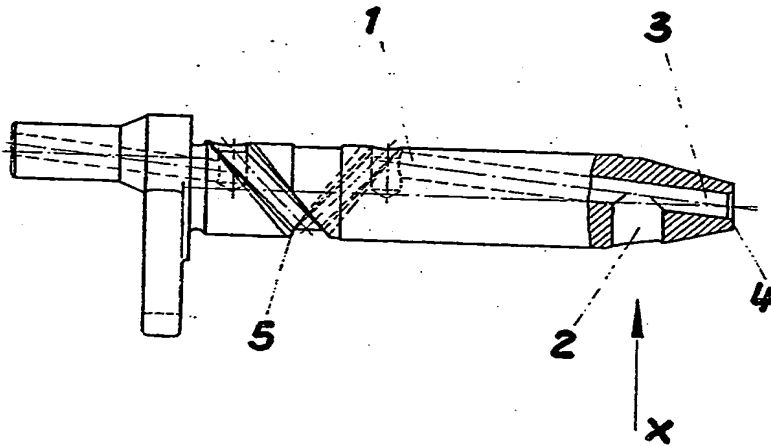


Fig. 2

